

Please amend Claim 11 to read as follows:

- 11. (Amended) A process for the manufacture of 1-chloro-1-fluoroethane, 1,1-difluoroethane or mixtures thereof by reaction between hydrogen fluoride and vinyl chloride, comprising:
- (a) providing at least prior to the reaction an organic solvent consisting of at least one saturated organic halogenated hydrocarbon;
  - (b) introducing hydrogen fluoride and vinyl chloride reactions into the organic solvent;
  - (c) recovering 1-chloro-1-fluoroethane, 1,1-difluoroethane or mixtures thereof.

Please amend also claim 21 as follows:

--21.(Amended) A process for the manufacture of 1-chloro-1-fluoroethane, 1,1-difluoroethane, or mixtures thereof, with reduced formation of heavy halogen-containing side products, by contacting hydrogen fluoride and vinyl chloride in a reaction mixture under such conditions that the vinyl chloride content is maintained in the reaction mixture at less than than15% by weight throughout the reaction. --

#### REMARKS

Reconsideration is respectfully solicited.

Support for amendment of Claim 1 may be found on pages 4, 1.11, 25 and example 3 (p. 10, 1.31-33). Amendment of Claim 11 with respect to feature (a) flows from the specification examples 2 and 3 (p. 10, in particular 1.15-17, 26-34). A marked up version of the claim changes is attached hereto.

From applicants' viewpoint it is clear that the amended claims require the presence of the organic solvent at all times of the process and consequently the claims are different from the applied prior art where presence of a saturated halocarbon would result from the non-removal from the reaction medium of products formed, where the saturated halocarbon could be present only after reaction initiation. In the prior art dilution of the

reactants is not provided at all times and consequently the unexpected advantages of the instantly claimed process as evidenced by the examples of the instant specification.

Turning to the Board's opinion, it is applicants' view that the reasoning of the board is incorrect because the Board has not fully considered the implications of the claims language "...wherein the hydrogen fluoride and vinyl chloride are introduced into an organic solvent..."

In order to have hydrogen fluoride and vinyl chloride (the reactants) introduced into an organic solvent, some organic solvent must be present in the reaction zone at the time the reactants are introduced therein.

Before some 1-chloro-1-fluoroethane, 1,1-difluoroethane, or mixtures thereof produced in the reaction zone can act as solvent for the reactants, a certain amount of hydrogen fluoride and vinyl chloride must have reacted (and of course must have been previously introduced into the reaction zone). Unless some solvent is intentionally present initially in the reaction zone, that means that hydrogen fluoride and vinyl chloride introduced initially into the reaction zone are not introduced into an organic solvent.

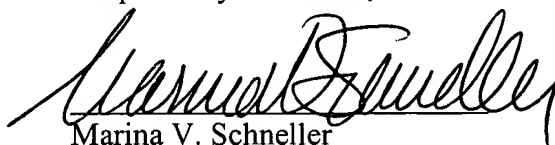
What is critical in the claimed process is the presence of an organic solvent at the time the reactants are introduced in the reaction zone, not contrary to the Board statement that "at some point during the reaction, product will be present which acts as a solvent".

This is clearly evidenced by the examples in the pending application which demonstrate that much larger amounts of heavy side products are formed in the reaction under such conditions than when hydrogen fluoride and vinyl chloride are introduced into an organic solvent.

Indeed, in the conditions of comparison examples 1, 2 and 4, there is, "at some point during the reaction, product that is present which acts as a solvent". Nevertheless, these examples show a much larger amount of heavy side products than the examples carried out in accordance with the invention, wherein hydrogen fluoride and vinyl chloride are introduced into an organic solvent.

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Respectfully submitted,



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In re application of:

Pascal PENNETREAU et al.

Serial No. 08/549,322

Filed: October 27, 1995

For: PROCESS FOR THE PREPARATION OF  
1-CHLORO-FLUOROETHANE AND/OR  
1,1-DIFLUOROETHANE

**MARKED UP VERSION OF CLAIM AMENDMENTS**

Please amend Claim 1 as follows:

1. A process for the manufacture of 1-chloro-1-fluoroethane, 1,1-difluoroethane or mixtures thereof, with reduced formation of heavy halogen-containing side products, by reaction between hydrogen fluoride and vinyl chloride in the liquid phase, [wherein the hydrogen fluoride and the vinyl chloride are introduced into an organic solvent consisting of at least one saturated halogen-containing hydrocarbon].

comprising

(c) providing a liquid reaction mixture containing an organic solvent consisting of at least one saturated organic halogenated hydrocarbon so as to provide for dilution of said reactants by the halogenated hydrocarbon at all times of the reaction;

(d) introducing said reactants into said liquid reaction mixture.

Please amend Claim 11 as follows:

11. (Amended) A process for the manufacture of 1-chloro-1-fluoroethane, 1,1-difluoroethane or mixtures thereof by reaction between hydrogen fluoride and vinyl chloride, comprising:

[reacting hydrogen fluoride and vinyl chloride in an organic solvent consisting of at least one saturated halogen-containing hydrocarbon selected from the group consisting of 1-chloro-1-fluoroethane, 1,1-difluoroethane, 1,1-dichloroethane and 1,3-dichloro-1-fluorobutane and

recovering 1-chloro-1-fluoroethane, 1,1-difluoroethane, or mixtures thereof.]

- (d) providing at least prior to the reaction an organic solvent consisting of at least one saturated organic halogenated hydrocarbon;
- (e) introducing hydrogen fluoride and vinyl chloride reactions into the organic solvent;
- (f) recovering 1-chloro-1-fluoroethane, 1,1-difluoroethane or mixtures thereof.

Please amend claim 21 as follows:

21.(Amended) A process for the manufacture of 1-chloro-1-fluoroethane, 1,1-difluoroethane, or mixtures thereof, with reduced formation of heavy halogen-containing side products, by contacting hydrogen fluoride and vinyl chloride in a reaction mixture under such conditions that the vinyl chloride content is maintained in the reaction mixture at less than than 15% by weight throughout the reaction.